

REMARKS

It is noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution. That is, claims 4 and 17 are amended above to more properly reflect the description so that the adverb properly modifies its intended noun in the sentence structure, in view of Figure 1B, wherein the substrate (e.g., base) 2 is used as the reference for relative location of elements.

Claims 1-31 are all of the claims pending in the present Application. Claims 1-3, 10-16, and 21-30 are allowed. Applicants gratefully acknowledge the Examiner's indication that claims 5-7 and 11 would be allowable if rewritten in independent format. However, Applicants decline to rewrite these claims at this time, particularly in view that newly-cited reference, US Patent 5,475,241 to Harrah et al., clearly does not seem to be related to the present invention as defined by independent claims 4 and 17.

It is further noted that claim 11 is listed as being both allowed and allowable if rewritten in independent format.

Claims 4 and 17 stand rejected under 35 USC §102(b) as anticipated by Harrah, and claims 8, 9, 19, and 20 stand rejected under 35 USC §103(a) as unpatentable over Harrah.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

As described and claimed, for example, by claim 4, the present invention is directed to a light emitting device including an insulating base having an upper surface and a lower

surface. A metal layer is provided on the upper surface and the lower surface of the insulating base.

A plurality of light emitting elements is arranged on the metal layer provided on the upper surface of the insulating base. A metal connection connects the metal layers to each other at a position substantially directly beneath a location where at least one of the plurality of light emitting elements is disposed.

The present invention provides a light emitting device in which homogeneous radiation characteristics is obtained and, thereby, provides the advantages that no significant change in color balance occurs over time and longer service life.

II. THE PRIOR ART REJECTION

The Examiner alleges that Harrah anticipates the present invention as defined by claims 4 and 17, and renders obvious claims 8, 9, 19, and 20. Applicants respectfully disagree.

First, a key feature of the present invention is that the heat dissipation of the various LED chips is equalized by having light emitting elements with the high heat dissipation mounted on top of a through-hole that interconnects the top and bottom metal layers.

As best understood, the Examiner considers that Harrah teaches this feature. However, the Examiner seems confused with the architecture shown in this newly-cited reference. As best understood, the Examiner considers the metal layer 14 in Harrah as teaching this aspect of the present invention in which the metal interconnecting the top and bottom metal layer be located substantially directly below a light emitting element.

However, Applicants submit that, to one of ordinary skill in the art, metal layer 14 is clearly used solely as an external interconnect of the p-n regions 11, 12 of the light emitting

element itself (e.g., see Figure 1 and Figure 10 and lines 56-58 of column 2).

That is, to one of ordinary skill in the art, this metal layer 14 does not interconnect the top metal layer 19 to the bottom metal layer 21 (e.g., see lines 49-50 of column 3), nor does the metal layer in Harrah that is used to interconnect the top metal layer 19 and the bottom metal layer 21 on the substrate 17 occur anywhere except at the ends of the substrate. It is noted that the end location (e.g., where the metal interconnect occurs in Harrah) does not at all correspond to the location of the light emitting device 10. Indeed, there is no suggestion in Harrah to provide the metal interconnection at a location substantially directly below the light emitting element 10.

Hence, turning to the clear language of the claims, there is no teaching or suggestion of “ ... a metal connection that connects the metal layers to each other at a position substantially directly beneath a location where at least one of the plurality of light emitting elements is disposed”

Again, in preparation for appeal and relative to the rejection currently of record for claims 8, 9, 19, and 20, Applicants understand the Examiner as having invoked Official Notice and request that the Examiner provide a reference properly combinable with Harrah.

For the reasons stated above, the claimed invention is fully patentable over the cited reference Harrah.

Further, the other prior art of record has been reviewed, but it too, even in combination with Harrah, fails to teach or suggest the claimed invention.

III. FORMAL MATTERS AND CONCLUSION

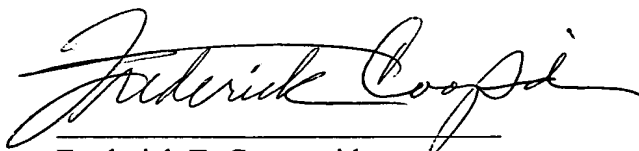
In view of the foregoing, Applicant submits that claims 1-31, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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